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## MODELLING IN CLAY.\*

## AN INTRODUCTION TO THE ART OF CARVING IN WOOD.

## I.

MODELLING is, perhaps, the only means by which the learner can attain a knowledge of carving without the assistance of a teacher. It enables him to try experiments in relief, to build up and take down, to spread out or bring together the parts of his pattern, until he obtains the best effect. A little practice with

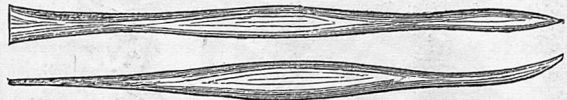


FIG. 1. CHISEL-SHAPED TOOL, WITH BENT POINT.

plastic materials soon enables him to get a knowledge of surfaces in relief. When this is once attained, the task of "thinking in wood" is practically accomplished. A few minutes' instruction from a teacher, or ten minutes spent in watching a person at work in clay, is worth more than all the instructions that could be given in a book. It is possible, however, by means of directions and engravings, to teach the elementary steps in the art; and it is also possible to give the practical man such directions as will enable him to use the clay as a convenient means for trying experiments, and determining in advance the effect which his work will have when finished in wood.

The necessary outfit is simple and inexpensive. The clay before it is used must be carefully refined and cleansed to free it from grit. All clay used in modelling should be thoroughly clean. It may be procured ready for use at any of the potteries. Modelling clay is apt to crack in drying, and on this account it should be kept moist by sprinkling water over it occasionally, and a piece of work in progress should be kept carefully covered with a damp cloth. The best repository for clay is a wooden box, lined with lead, tin, or zinc, but even when kept in such a receptacle as this, the clay must be damped occasionally.

The tools and appliances necessary for working in clay are not numerous, and any one, whether professional carpenter or amateur, who wishes to take up the art, need have no expense beyond that of getting the clay. Every necessary article can be made or extemporized by any one who has sufficient ability to use the carpenters' tools, and to do a little simple carpentry. Modellers' tools are made of wood, ivory, or bone. Metal tools may be purchased for cutting and digging out the clay from the lump.

Of each tool which it is desirable to have in the beginning, two views have been given, as the reader will see on looking at Figs. 1 to 5. These are so simple that he will find no difficulty whatever in making them. In all the figures, excepting Fig. 5, of which only one view has been supplied, the sketches terminating in long points show the tool when regarded in elevation, or when looking directly at its side, while the other sketches, terminating in obtuse points, and in the case of Fig. 4 in a square end cut obliquely, show the tool when looked on in plan, as when laid on the table with the eye directed downward upon it. For small work, six inches is long enough for any and all of these tools, but for designs of any considerable size, larger tools are needed. Fig. 1 shows one, chisel-shaped at one

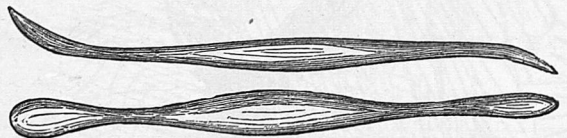


FIG. 2. DOUBLE BENT SPATULA, OR SPOON-SHAPED TOOL.

end, having at the other end a point which is somewhat bent. Fig. 2 shows a tool bent at both the ends, which in shape are something like the bowl of a spoon. Fig. 3 shows a tool which has the end to the left thin and sword-shaped, while that to the right is bent, and terminates in a somewhat pointed, spoon-shaped form. That shown in Fig. 4 has an oblique, chisel-shaped edge at one end, while the other is well-rounded. Fig. 5 shows a tool having a sword-like blade at one

end cut into teeth. It is a useful tool for cutting away portions of the clay, and for digging out.

In order to trace all the steps necessary to be taken in the manipulation of clay, it is needful to describe the progress of a piece of work from its commencement to its completion. A bracket which is not to be perforated will form a very good lesson. In actual practice the design will probably be given in some such form as shown in Fig. 6—at least no more than this will be found in a tracing, or the outline patterns usually furnished to work from. This design consists of a spray of leaves. There is little or no indication of relief; the whole of this portion of the work is to be left to the carver. In the first place, the design must be transferred in lead pencil to the slate or board on which the modelling is to be done. White marble slabs offer a very good surface on which to prepare a model, as they show lead-pencil marks so plainly. Lead pencils may also be used upon slate. The amateur modeller must be careful to have the whole outline upon the slab before beginning the work of putting on the clay. Little inaccuracies need not be noticed, as they can be corrected during the progress of the work. When the outline has been traced on the modelling board, the work is ready for the clay. The design presented to the amateur in Fig. 6 is intended to be carved in a sunken panel. No portion of it will, therefore, rise above the general level of the sides or framing which incloses the panel, as shown in the profile. The drawing is not made to scale, and the modeller may suit the

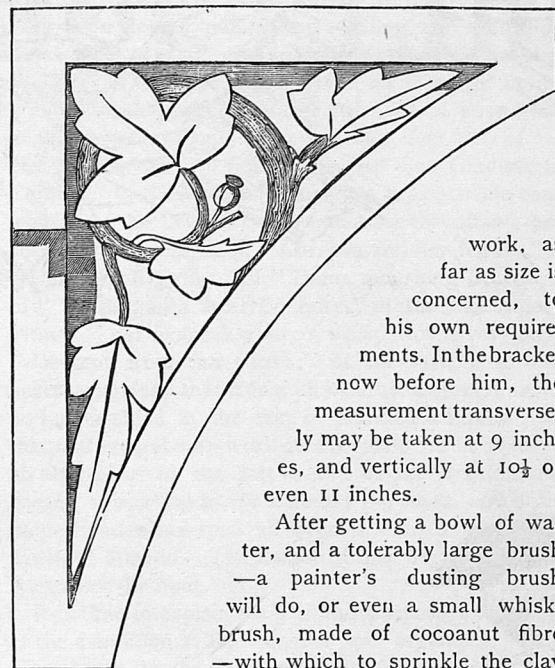


FIG. 6. PATTERN OF BRACKET TO BE MODELLED IN CLAY.

work, as far as size is concerned, to his own requirements. In the bracket now before him, the measurement transversely may be taken at 9 inches, and vertically at 10½ or even 11 inches. After getting a bowl of water, and a tolerably large brush—a painter's dusting brush will do, or even a small whisk-brush, made of cocoanut fibre—with which to sprinkle the clay from time to time, to prevent it from drying too rapidly, the operator is ready to begin work. The first thing to be done is to take a piece of clay, and roll it into a little cylinder between the thumb and finger, as shown in Fig. 8. This cylinder, when made, must be laid along some portion of the outline, and the modeller must press it down firmly with the forefinger of the left hand upon the slate, at the same time preventing it from spreading over the line by means of the chisel-shaped tool (see Fig. 1), which is held against the slate upon the outline. The method of doing this is clearly shown in Fig. 9. In this way the whole outline can be easily followed in all its details. It is necessary to be sure that the clay is packed closely down upon the slate, touching it in every part, so that no air-bubbles are left, and no cracks or upraised edges are to be seen. If the leaf is wide, and the roll of clay does not spread all the way across, the margin will appear in section as shown in Fig. 10. Both edges when they meet the slate are squeezed down firmly, so as to be in close contact with it. Fig. 10, it should be said, shows how the work would appear if it were properly laid down on the slate, and then cut across with some suitable instrument, so as to show the section, a portion being removed for this purpose from one side of the incision or the other. Fig. 11, on the contrary, shows in section a piece of clay that has been improperly put on the slate, and not pressed firmly down to it, the edges appearing rough and upraised from the slate, and an air-bubble below the mass toward the edge on the right. When clay is put on in this manner, it is liable to crack off, and can-

not be firmly united to anything that may be put on afterward. The amateur modeller may be recommended to try the effect of two pieces of clay placed near together on the slate—the one properly and perfectly, the other improperly and imperfectly, and to note the result. He will thus gather knowledge from actual trial, and he will have the satisfaction of not having obtained his experience through coming to grief over any piece of actual work. In making the stems, where a rough roll of clay, when pressed firmly,

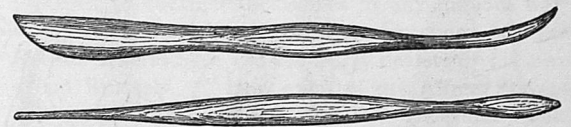


FIG. 3. SWORD-BLADE AND POINTED SPOON COMBINED.

will extend all the way across the outline, or, rather, the space between the outlines that indicate its limit on either side, the tool can be used first on one side and then on the other, and so the clay can be kept within bounds while being pressed down upon the slate.

In joining two pieces of clay together, or putting a piece upon work already begun, it is necessary to make the surfaces smooth that are to come together, and somewhat moister than the other portions. Then, after they have been joined with the tool or fingers, smooth up and obliterate any trace of the joint. They will thus adhere firmly. If the line of joining is not obliterated a crack is begun, and the added piece is always liable to come off, or the work will break.

When the outline is all finished, and no more can be done to perfect it, the work is necessary for the next step. Here it is necessary to observe in modelling no two steps should ever be mixed; all parts of the work should be in the same stages. The reason for this the amateur will find out to his sorrow whenever he violates it. He must take care to have all the outline filled before the following step of building-up is begun.

After the outline has been solidly fastened by pressure and guidance of the chisel-shaped tool to the slab or board, the building-up may be begun by applying little rolls of clay along the middle or sides, as the case may be. How this is done is shown in Fig. 12, in which the process of building-up or heightening an edge with a roll of clay, is exhibited. After the roll is pressed down in place, the chisel-shaped tool must again be brought into operation to smooth the edge and obliterate the mark where the clay joins upon the edge of the work, and the finger can do the same work for the seam upon the surface.

[To be continued.]

## FIRST STEPS IN AMATEUR PHOTOGRAPHY.

## I.

APART from the interest which attaches to photography for its own sake, some practical knowledge of the art is for obvious reasons especially valuable to artists. In the following directions for the amateur, which especially relate to open-air work, it is not deemed necessary to discuss the scientific aspects of the pursuit. The novice will desire to proceed at once to work, and we shall only say what is necessary to enable him to do so. He probably knows already that he

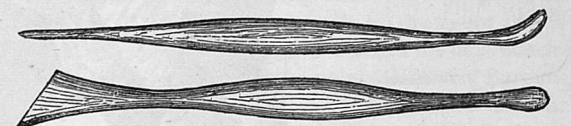


FIG. 4. OBLIQUE CHISEL EDGE AND GREATLY CURVED SPOONBILL.



FIG. 5. TOOTHED SWORD-BLADE AND BENT POINT.

has to do only with the "negative" plate—the permanent semi-transparent reversed picture on glass, from which is printed on sensitive paper, by the action of the sun, an indefinite number of copies, known as photographs. The old-fashioned "positive" process, which gives one image upon one plate without hope of reproduction except by photographing the original plate, is still retained in the "tin type." Photography is made easy for the amateur now by the introduction

\* Condensed, with alterations, from a series of articles in *Carpentry and Building*, by W. E. Partridge.



of dry plates, by which is meant the plates which are now sold ready prepared to receive the impression of the object. Formerly, when the wet plate was the only kind used, the production of a negative involved tedious and dangerous methods which but few amateurs had the patience to master.

The dark room is used for unpacking and examining the dry plates, placing them in the plate-holder, and for developing them after exposure. As dry plates are very much more sensitive than wet plates, great care

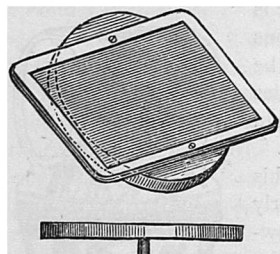


FIG. 7. TURN-TABLE FOR STAND.

should be taken to keep every ray of white light out of the dark room. "Copper-flashed" ruby glass should be used in the window or lantern, and it is well in the former case to have a sheet of yellow tissue paper over the window, to diffuse the light. It is important to know that while "gold-flashed" ruby glass is undistinguishable with the naked eye from the "copper-flashed" it is worthless in dry-plate work, because it fails to stop the green and blue rays of the spectrum, to which gelatine plates are very sensitive. As a substitute for ruby glass, when that is not to be obtained, common yellow post-office paper—that which shows a dark stain upon the application of sulphide of ammonium—does very well. Several thicknesses may be used, and it may be rendered translucent by a coat of castor oil. It must be borne in mind, however, that the less the plates are exposed to any light, the better; hence, when a package of plates is opened, they should be carefully dusted with a fine camel's-hair brush, and transferred immediately to plate-holders, or light-tight grooved boxes, and kept in the dark. The dark room may be provided with a table, a sink, and running soft water, but where the sink or a special room is not convenient, a common dark closet, having a shelf or table of convenient height, a pitcher of fresh water and a basin, will be all that is necessary for washing the plates. When a dark room or closet is unobtainable, the development must be postponed until night.

Two things are absolutely necessary in the dark room—perfect order and absolute cleanliness. Have a convenient place for everything, and never use the same bottle or dish for different purposes. By observing these directions, you will avoid a long list of failures, which would otherwise be difficult to account for. If the ruby lamp is used, light it upon entering the room, and lock the door behind you.

Always handle the plates by the edges of the longer diameter, as those edges will be covered by the ledges of the plate-holder. The sensitive surface of the plates is easily distinguished from the back or glass surface by its exquisite, opalescent, slightly granular appearance.

In placing plates in the holder, clasp the latter with the left hand, and with the thumb and first finger of the right turn the milled edge and slotted plate, forcing the clasp until it can be entirely removed from the pins. Then open the frame as you would a book, remove the septum, place a plate in each cell, being very careful not to scratch the plates, and sure that the sensitized surfaces of the plates face each way from the septum. Close the frames, still having the holder in the left hand, the thumb of which holds down the septum until the frames are nearly in contact. Replace the



FIG. 8. MAKING SMALL ROLL OF CLAY.

milled-edged and slotted plate upon the pins, and turn it until a perfect closure is made. As a final precaution draw the slides, and see if the plates are pressed firmly against the ledges which support them, also if their sensitized surfaces are exposed to view, and free from dust. Close the slides carefully and completely. You can now go out into white light in safety, provided you are quite sure that your light-tight box, containing your stock of plates, is closed and covered before you open the door and emerge from the dark room.

In long journeys on rough roads it is well to place straps of light gum elastic around the holder and the slide handles, to prevent the possibility of their being jarred out of position.

We may now proceed with the manipulation of the instrument. Having provided yourself with one yard of black cotton velvet (a cheaper fabric will do), place the camera firmly upon its tripod, level the camera by taking it firmly in both hands, and moving it in horizontal and vertical planes, until the view required is seen upon the focusing screen, always pressing slightly downward, that the operation may not dislodge your tripod legs. If the movement is difficult, ease away the brass nut under the rubber disc; if too easy, tighten it. Now cover your head and shoulders and the camera with the velvet cloth, place the left hand upon the top of the camera, which will serve to steady it, and hold the cloth in position. Now with the thumb and first finger of the right hand clasp the milled collar of the tube cap (or the adjusting screw if using a larger lens), and with a slow spiral motion move it inward and outward as the case may require, until the finest details of the subject are visible upon the focusing screen. If the subject be a landscape having a long avenue of trees or of architecture, including long distances, focus upon a point midway between the instrument and the limit of your vision. Theoretically there is but one plane in focus, at one time; practically, you must approximate to actual focus. Sometimes a small eye-glass is used to determine the exactitude of focusing. Take time for this operation; it will amply repay the greatest care. It is quite evident that clear definition cannot be obtained without accurate focusing.

In focusing where instantaneous views are to be

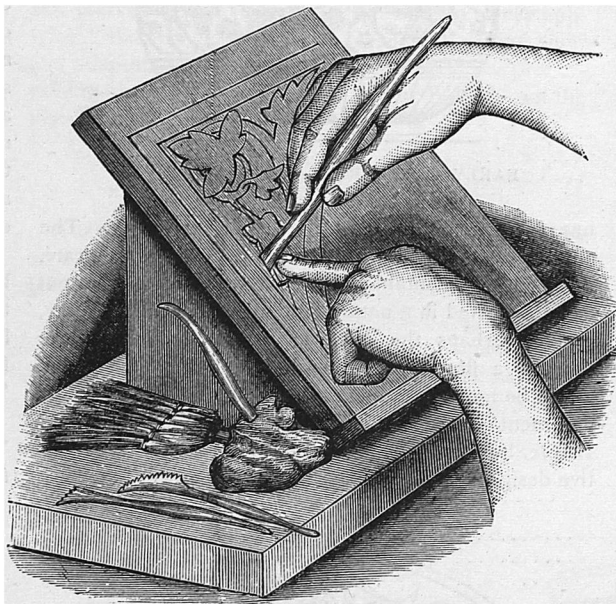


FIG. 9. APPLYING CLAY AND FITTING UP FIGURE DRAWN IN OUTLINE ON SLAB.

taken with the aid of the drop shutter, always focus upon the point to be occupied by the coming object, and drop the shutter when the object is in range. Tourists will find the drop shutter of great value; pictures can be taken from the deck of a moving steamer, or vice versa.

Immediately after focusing, insert the proper diaphragm, and place the hood over the tube cap. Now unlatch the focusing screen, and allow it to hang upon its hinge; place the plate-holder upon the back of the camera, by first inserting the small pins in the sides thereof into the slots of the side-plates of the camera, and carefully latching it in position at the top.

Now draw the slide of the plate-holder nearest the lens, which is always the slide to be drawn. It is perhaps unnecessary to state that every operation after focusing should be conducted with the utmost care, to avoid moving the camera in the slightest degree.

Now pause a moment. Remember that the rays of light which are to enter your camera are reflected rays coming from the objects you saw upon the focusing screen. Remember, not only is the actinic power of the sun's rays constantly changing, but the reflecting properties of surfaces vary greatly, some absorbing, while others powerfully reflect these rays. Again, the color of surfaces indicates the actinic value of the ray reflected by them—the approach to yellowness indicating low actinic value, and consequently requiring

longer exposure. Look up. What kind of light have you? Is the sun obscured by a passing cloud, or is it soon to be? Remember, for bright sunshine insert the smallest diaphragm; if a moderate or diffused light, use the larger; but always use the smaller if possible, especially in landscape photography, as the effect is to sharpen up the picture. Of course, the smaller the diaphragm the less light will be admitted to the camera, and the length of exposure must be determined entirely by the quality of the light, the reflecting properties of the objects you saw upon the screen, and the possibility of the sun's rays reaching those surfaces.

If your instrument is so placed that direct or nearly direct rays can enter the tube opening, no matter from what angle, shade the tube opening by holding the slide of the holder when it is drawn, so as to prevent the possibility of their so entering, being very careful not to obstruct the reflected rays coming from the object you desire to photograph. By shading with the hand immediately after focusing, and before the screen is unlatched, you will soon become familiar with the position in which the slide should be held. It is well to leave the velvet cloth covering the camera and the holder during exposure, and even to draw the slide from the holder from beneath its sheltering folds, by which means rays which might otherwise enter between camera and holder will be so diffused as to be harmless.

The surer way for a beginner is to make two, three, or four exposures of as many plates in rapid succession, upon the same view, without moving the camera, with an exposure of one second for the first plate, and adding one second for each subsequent exposure—using the same diaphragm, and observing carefully any change in light, or other conditions likely to affect the result. Your plate-holder slides should always be numbered consecutively, and exposures always be made in the order of the numbers. Keep a memorandum book, and make notes of all conditions likely to affect these plates during exposure.

Now, everything being ready, clasp the hood firmly with thumb and finger of the right hand, and draw it from the tube cap with a slightly spiral motion, removing it as quickly as possible, and entirely out of range of the lens, and, watch in hand, count off the seconds. Then replace the hood carefully and quickly, and insert the slide of the holder, after which the holder may be removed from the camera with impunity. The plate is now ready for development—now reverse the holder, and expose the other plate in a similar manner—and so on.

Now return to your dark room, carefully close and lock the door, place a light within your ruby developing lamp, open your holders, and place No. 1 of the exposed plates, sensitized surface up, in the developing tray, and proceed to develop it, and subsequently the remaining plates, watching carefully the treatment required for the different conditions under which they were exposed. Don't fail to make your notes again, observing closely any phenomena. Do it now, developing one plate at a time. Remember, exposure and development must always be considered together.

You have now several plates exposed under varying conditions, and developed accordingly, and, if you have observed carefully, will have learned more than from an entire summer's random work. You must expect to lose a dozen plates; it is better to do it in systematic learning than in guessing. In our next issue we shall proceed to the development of the plate and the printing, and we shall also give, if space permits, some special hints about landscape photography for summer tourists.

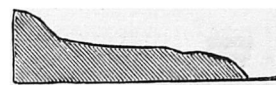


FIG. 10. CLAY PROPERLY APPLIED.

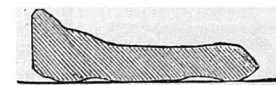


FIG. 11. CLAY BADLY APPLIED.

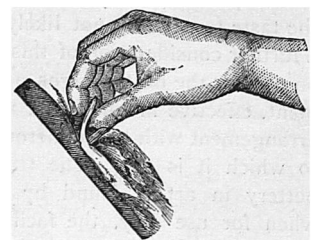


FIG. 12. BUILDING UP EDGE WITH ROLL OF CLAY.